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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,967	09/25/2006	Nicolas Nadaud	293259US0PCT	6539

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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P.
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ALEXANDRIA, VA 22314

EXAMINER

COLEMAN, RYAN L

ART UNIT	PAPER NUMBER
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1792

NOTIFICATION DATE	DELIVERY MODE
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02/01/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/586,967	Applicant(s) NADAUD ET AL.	
	Examiner RYAN COLEMAN	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 January 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 11-19 and 24-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 20-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/25/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group 1, claims 1-10 and 20-23, in the reply filed on January 11, 2010 is acknowledged.
2. Applicant argued against the restriction requirement by stating that the examiner did not consider the contents of the claims *interpreted in light of the description* when making the assertion of there being lack of unity. Applicant did not present any specific arguments showing that the examiner did not consider the contents of the claims *interpreted in light of the description* when making the assertion of there being lack of unity. In response, the examiner still asserts that the inventions lack unity because, as explained in the examiner's restriction requirement, the special technical feature of the inventions is taught by U.S. Patent Application Publication No. 2003/0064198 by Thomsen et al., and the examiner did consider the content of the claims *interpreted in light of the description* when the examiner presented the argument that the special technical feature was taught in the prior art.
3. Applicant also argued against the restriction requirement by citing 37 CFR 1.475(b)(2) and MPEP 806.03 and stating that the examiner has not considered the relationship of the inventions in view of the cited material. However, Rule 1.475(b) has been superseded by the "special technical feature" rule set forth in the PCT Administrative Instructions, Annex B, Part 1 at (b) and Rule 13.2.

".....application is subject to the unity requirements set out in PCT Rules 13.1 – 13.4 and 37 CFR 1.475, as well as the PCT Administrative Instructions, Annex B. MPEP 1893.03(d) permits

Art Unit: 1792

groupings of claims which are linked to form a single general inventive concept where there is a technical relationship among the inventions that involves at least one common or corresponding technical feature.

The PCT Administrative Instructions, Annex B, Part 1 at (b) state that “the special technical features” common to all groupings of inventions shall be defined, as in PCT Rule 13.2, to mean,

“those technical features which each of the claimed inventions, **considered as a whole, makes over the prior art.**” (Emphasis added)

MPEP 1850 (Rev. 6, Sept. 2007, page 1800-98) further specifies that "PCT Rule 13.2, as it was modified effective July 1, 1992, no longer specifies the combinations of categories of invention which are considered to have unity of invention..... **The categories of invention in former PCT Rule 13.2 have been replaced with a statement describing the method for determining whether the requirement of unity of invention is satisfied. Unity of invention exists *only* when there is a technical relationship among the claimed inventions involving one or more special technical features. (Emphasis added).**"

4. In short, since the special technical invention of the inventions is taught in the prior art, the inventions lack unity in accordance with 37 C.F.R. 1.475(a), and as result, the relationship between the inventions that is referred to in 37 C.F.R. 1.475(b)(2) does not prevent the inventions from being restricted from each other. Further, MPEP 806.03 is not applicable because the inventions lack unity of invention and are distinct from each other.

5. The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 21 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant

Art Unit: 1792

regards as the invention. Claim 21 recites the limitation "the cathode sputtering process", and there is insufficient antecedent basis for this limitation in the claim. For purposes of examination, it was presumed that applicant intended to have claim 21 depend from claim 3.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

Art Unit: 1792

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 1, 2, 5-7, 9, 10, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2004/0020761 by Thomsen et al. (hereafter referred to as "Thomsen '761") in view of U.S. Patent Application Publication No. 2003/0064198 by Thomsen et al. (hereafter referred to as "Thomsen '198").

12. With regard to claims 1, 2, 9, and 20, Thomsen '761 teaches a method for the continuous vacuum cleaning of a glass substrate that involves moving the glass substrate through a vacuumed, low pressure chamber while cleaning the top of the substrate with an ion beam source (not shown in the Figures; reads on *linear ion source*) located above the substrate and subsequently, without breaking vacuum, depositing a thin film on the cleaned surface with a sputtering target (item 65 in Figure 2) that is also located in the vacuumed, low pressure chamber (Par. 0028 and 0031-0033; Figure 2). Thomsen '761 teaches using argon as the feedstock gas for the ion beam source that is used for cleaning (Par. 0038).

13. Thomsen '761 does not teach using a gas mixture comprising a species having low sputtering efficiency as the feedstock gas for the ion beam source that is used for cleaning.

14. Thomsen '198 teaches that when using an ion beam source to clean the surface of a glass substrate, it is advantageous to use a mixture of argon gas and oxygen gas as the feedstock gas for the ion beam source because the mixture results in the fast

Art Unit: 1792

and efficient removal of contaminants from the surface and the oxygen (reads on *species having a low sputtering efficiency*) beneficially prevents iron from being sputtered onto the substrate surface (Par. 0012 and 0054).

15. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Thomsen '761 by using a mixture of argon gas and oxygen gas as the feedstock gas for the ion beam source that is used for cleaning. The motivation for performing the modification was provided by Thomsen '198, who taught that when using the mixture as a feedstock for an ion beam source, the mixture can quickly and efficiently remove contaminants from a glass surface and that the oxygen can beneficially function to prevent iron from being sputtered onto the substrate surface.

16. The combination of Thomsen '761 in view of Thomsen '198, as developed thus far, does not teach that the mixture of oxygen and argon comprises predominantly oxygen.

17. Thomsen '198 teaches that the argon and oxygen function differently in the cleaning plasma: argon functions to mill the glass surface and oxygen functions to clean the glass surface (Par. 0054). Since the argon and oxygen gases produce different effects in the plasma, their relative concentrations within the mixture are considered to be result-effective variables.

18. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Thomsen '761 in view of Thomsen '198 by optimizing the relative concentrations of argon and oxygen within the feedstock mixture for the ion beam source that is used for cleaning because, as taught by Thomsen '198, the relative

Art Unit: 1792

concentrations of argon and oxygen within the mixture are result-effective variables (MPEP 2144.05, *Optimization of Ranges*).

19. With regard to claim 5, in the method of Thomsen '761 in view of Thomsen '198, there is considered to be relative movement between the ion beam source and the glass substrate because Thomsen '761 teaches using rollers (item 63 in Figure 2 of Thomsen '761) to move the glass substrate while the substrate is treated with the ion beam source (Par. 0028 and 0033; Figure 2 of Thomsen '761).

20. With regard to claim 6, in the method of Thomsen '761 in view of Thomsen '198, the ion beam source is positioned to expose the glass substrate's surface to a plasma beam formed with a mixture of argon and oxygen, and as taught by Thomsen '198, when cleaning a glass substrate with such a gas mixture, the oxygen prevents iron from being sputtered onto the substrate surface (Par. 0012 of Thomsen '198). In addition, since the combination of Thomsen '761 in view of Thomsen '198 teaches performing the same method steps with the same materials as those claimed by applicant, the effect of having the average sputtering efficiency of the ionized species not allow sputtering of the treated surface is expected to occur in the method of Thomsen '761 in view of Thomsen '198.

21. With regard to claim 7, in the method of Thomsen '761 in view of Thomsen '198, the ion beam source is positioned within a coating apparatus (reads on *plant*) of industrial size because the coating apparatus can be used to perform industrial activity (Par. 0028 and 0033).

Art Unit: 1792

22. With regard to claim 10, in the method of Thomsen '761 in view of Thomsen '198, two different surface portions of the substrate are considered to be successively treated with the cleaning plasma from ion beam source because Thomsen '761 teaches using rollers (item 63 in Figure 2 of Thomsen '761) to move the substrate relative to the ion beam source such that different surface portions of the substrate can be treated (Par. 0028 and 0033; Figure 2 of Thomsen '761).

23. Claims 8, 22, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thomsen '761 in view of Thomsen '198 as applied to claim 1 above, and further in view of U.S. Patent Application Publication No. 2002/0117250 by Veerasamy.

24. With regard to claims 8, 22, and 23, the combination of Thomsen '761 in view of Thomsen '198 teaches using the ion beam source to generate a collimated beam of ions (Par. 0037 and 0038).

25. The combination of Thomsen '761 in view of Thomsen '198 does not specify the energy of the ions that are in the collimated beam.

26. Veerasamy teaches that when using a linear ion beam of ions to remove undesired material from a glass substrate, the energy of the ions is a result-effective variable because some energy values are more preferable than others (Par. 0050 and 0051).

27. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Thomsen '761 in view of Thomsen '198 by optimizing the energy of the ions in the ion beam that is used to remove undesired material from

Art Unit: 1792

the glass substrate because, as taught by Veerasamy, the energy of such ions is a result-effective variable (MPEP 2144.05, *Optimization of Ranges*).

28. Claims 3 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thomsen '761 in view of Thomsen '198 as applied to claim 1 above, and further in view of U.S. Patent No. 4,891,113 to Criss.

29. With regard to claims 3 and 21, the combination of Thomsen '761 in view of Thomsen '198 teaches using glass substrates treated with the cleaning method as windows in architectural structures (Par. 0035 of Thomsen '761).

30. The combination of Thomsen '761 in view of Thomsen '198 does not teach that a thin film is deposited onto a glass substrate with a cathode sputtering process.

31. Criss teaches that magnetically enhanced cathode sputtering can be used to deposit solar energy control films onto glass substrates that are to be used as a windows in architectural structures (Col. 1, 9-38; Col. 2, 14-24; Claims 1 and 2). Criss teaches that such solar energy control films can advantageously be used to control the amount of solar energy that passes through a window such that the cost of heating or cooling an architectural structure with such windows can be reduced (Col. 1, 19-38; Col. 2, 14-24).

32. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Thomsen '761 in view of Thomsen '198 such that a magnetically enhanced cathode sputtering system is used as the sputtering target 65. The motivation for performing the modification was provided by Criss, who teaches that magnetically enhanced sputtering can be used to deposit solar energy control films onto

Art Unit: 1792

architectural glass substrates in order to advantageously reduce the cost of heating or cooling a building that uses such glass substrates as windows.

33. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thomsen '761 in view of Thomsen '198 as applied to claim 2 above, and further in view of U.S. Patent Application Publication No. 2004/0163945 by Hartig.

34. With regard to claim 4, the combination of Thomsen '761 in view of Thomsen '198 teaches using glass substrates treated with the cleaning method as windows in architectural structures (Par. 0035 of Thomsen '761).

35. The combination of Thomsen '761 in view of Thomsen '198 does not teach that a thin film is deposited onto a glass substrate with a chemical vapor deposition technique.

36. Hartig teaches forming thin films on glass substrates that are to be used in architectural structures such that the reflectivity and emissivity of the glass can be advantageously modified (Par. 0002 and 0003). Hartig teaches that forming such films with sputtering techniques is undesirable because the manufacturing process must be interrupted when a sputtering target needs to be replaced and the sputtering process can cause undesirable contamination to build up on the surfaces of the processing equipment (Par. 0004-0009). Hartig teaches that it is desirable to use plasma-enhanced chemical vapor deposition to form such thin films on glass substrates instead of using the undesirable technique of sputtering (Par. 0021, 0022, and 0041-0044).

37. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Thomsen '761 in view of Thomsen '198 by substituting the sputtering target 65 with a plasma-enhanced chemical vapor deposition

Art Unit: 1792

system (MPEP 2143, Rationale B). The motivation for performing the modification was provided by Hartig, who taught that when depositing thin films onto glass substrates, plasma-enhanced chemical vapor deposition is the more desirable technique than sputtering because sputtering requires that the manufacturing process be interrupted whenever the sputtering target needs to be replaced.

Conclusion

38. Any inquiry concerning this communication or earlier communications from the examiner should be directed to RYAN COLEMAN whose telephone number is (571)270-7376. The examiner can normally be reached on Monday-Friday, 9-5.

39. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Kornakov can be reached on (571)272-1303. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

40. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

Application/Control Number: 10/586,967

Page 12

Art Unit: 1792

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Ryan L. Coleman

Patent Examiner, Art Unit 1792

January 27, 2010

/Michael Kornakov/

Supervisory Patent Examiner, Art Unit 1792